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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/586,135	07/17/2006	Hans-Georg Goebbel	293217US0PCT	3832
22850	7590	12/28/2009	EXAMINER	
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314			GALLIS, DAVID E	
			ART UNIT	PAPER NUMBER
			1625	
			NOTIFICATION DATE	DELIVERY MODE
			12/28/2009	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/586,135	GOEBBEL ET AL.
	<b>Examiner</b>	<b>Art Unit</b>
	DAVID E. GALLIS	1625

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 12 October 2006 and 28 October 2009.
- 2a) This action is **FINAL**.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 1-9, 19 and 20 is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 10-18 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/12/06</u> . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|   | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

1. Claims 1 through 20 are pending. Claim 6 has been amended. Claims 1 through 9 and 19 and 20 have been withdrawn from consideration. Applicants' claim to foreign priority from GERMANY 10 2004 003 003.0 filed January 20, 2004 is acknowledged. Applicants' Response to Restriction Requirement filed October 2, 2009 has been entered and carefully considered.

### ***Election/Restrictions***

2. Applicants have elected with traverse Group II of the October 2, 2009 restriction requirement. Applicants argue that Groups I through III are related as product and apparatus for making said product, and as such are considered interdependent and should be examined together. Applicant's argument is not persuasive. Group II is independent of a specific chemical process or its improvement. Furthermore, consideration of specific chemical processes clearly entails added and undue search burden. The subject matter encompassed by Group II is as follows:

II      Claims 10 through 18, drawn to a shell-and-tube reactor and apparatus for the continuous preparation of a chemical compound, classified in various classes and subclasses.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 10 through 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith (US 3,357,916, December 12, 1967, cited by Applicants), and in further view of Sederquist et al. (US 2002/0064487, May 30, 2002) and Hudson (GB 2,213,922 A, August 23, 1989).

5. Claims 10 through 13 are drawn to a shell-and-tube reactor for the continuous preparation of a chemical compound, comprising a shell and at least one noncircular cross-section internal tube located within the shell, wherein at least one of the internal tubes having the noncircular cross section is at least partly helical in the region in which it is surrounded by the shell. Said reactor is further limited by claims 14 and 15, wherein at least one tube contains a fixed bed catalyst, said catalyst is titanium zeolite. Claims 16 through 18 are drawn to an apparatus comprising two of said reactors and a separation device, specifically distillation.

6. Claims 10 through 18 are obvious over Smith teaching a shell-and-tube reactor comprising helical tubes, the inner surfaces of which are embedded with a super active catalyst (see Figure 4; column 7, lines 38-40: column 7, line 64 through column 8, line 26). Smith teaches the use of synthetic zeolites, which are known to comprise titanium zeolites. While Smith does not teach reactor tubing of non-circular cross-section such an element is well known to the art. and is taught by Sederquist et al. and Hudson. Sederquist et al. teach a steam reformer using a finned tube helical coil, or a corrugated tube helical coil (see page 3, ¶0035) and Hudson teaches a heat exchange element where the tubes are elliptical in cross-section (see figures 1 and 2; page 2, lines 13-18). It would be obvious to one of skill in the art to combine these elements and design

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attributes. Apparatus inclusive of a distillation stage is well known to the art, and distillation is well known expedient to chemical separations.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David E. Gallis whose telephone number is 571-272-9068. The examiner can normally be reached on Mon-Thur 8:30-7:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Janet Andres can be reached on 571-272-1600. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

David E. Gallis  
Patent Examiner

/ Bernard Dentz/

Primary Examiner, Art Unit 1625